REMARKS

The application has been amended to place it in condition for allowance at the time of the next Official Action.

Claims 17-34 were previously pending in the application. Claims 18 and 26 are canceled, leaving claims 17, 19-25 and 27-34 for consideration.

Claims 17 and 24 were rejected under 35 USC 102(b) as being anticipated by TORU et al. JP 6-034894. That rejection is respectfully traversed.

Claim 17 is amended to include the subject matter of claim 18. Since TORU was not applied against claim 18 as part of an anticipation rejection, the anticipation rejection should be withdrawn.

Claims 18, 20, 22 and 23 were rejected under 35 USC 103(a) as being unpatentable over TORU. That rejection is respectfully traversed.

The Official Action recognizes that TORU does not disclose a semiconductor photovoltaic device. Nevertheless, the position set forth in the Official Action is that semiconductor photovoltaic devices are known and that it would have been obvious to use such a device in TORU because such a device provides adequate light sensing capabilities at a reasonable cost and relative ease of manufacture.

However, this position is believed to be untenable because the proposed modification would change the principle of operation of TORU.

TORU discloses that a photo detector 6, a pro-amplifier 7, a comparator 8 and a drive circuit 9 drive an optical switch 4. In the optical switch 4, an exciter 46 having a coil which is current-driven by the drive circuit 9 drives a Faraday effect element 44. That is, TORU discloses that the optical switch 4 is current-driven. Consequently, in TORU, an element that converts light to current is used and a semiconductor photovoltaic device that generates voltage would not have been contemplated or considered as such a device would change the principle of operation of TORU.

For example, TORU teaches that a semiconductor sensor such as photo diode or photoconductive element that generates current is used as the photo detector 6 (see paragraph [0011]).

An advantage of the present invention resides in that "Use of the semiconductor photovoltaic device allows a signal voltage to be generated without a power source and the opening and closing part 16 of optical transmission path to be directly driven." (See, for example, page 6, lines 21 to 24 of the present application). TORU does not recognize such an advantage and thus, it would not have been obvious to modify TORU in the manner suggested.

Amending claims 25 and 34 to include the subject matter of claim 26 is believed to obviate the rejection of claims 25, 28, 32 and 34 under 35 USC 102(e) as being anticipated by TAKEUCHI 7,049,574.

Claims 26, 30, 31 and 33 were rejected under 35 USC 103(a) as being unpatentable over TAKEUCHI. That rejection is respectfully traversed.

The Official Action recognizes that TAKEUCHI does not disclose a semiconductor photovoltaic device with a stack-type structure. Nevertheless, the position set forth in the Official Action is that semiconductor photovoltaic devices are known and that it would have been obvious to use such a device in TAKEUCHI because such a device provides adequate light sensing capabilities at a reasonable cost and relative ease of manufacture.

However, this position is believed to be untenable because the proposed modification would change the principle of operation of TAKEUCHI.

TAKEUCHI discloses that a nonlinear optical medium 9 divides a pumping light 8 to an idler photon 5 and a signal photon 6, and the number of photons of the idler photon 5 is detected by a photon number detector 2 (see Fig. 1).

In contrast, a semiconductor photovoltaic device having a stack–type structure operates for example as follows:

"an input light 58 enters a light guide layer 52 and, while being guided by the guide layer 52, a part of the input light (a part of a guided light) is coupled (evanescently-coupled) to a photovoltaic region of a PIN absorption layer or an absorption layer 54 having a nipi–type multi-junction structure to be absorbed to thereby generate a voltage. The guided light

that has not been coupled is output as an outgoing light 59 from the output side." (See, for example, page 15, lines 6 to 13 of the present application).

That is, the semiconductor photovoltaic device having a stack–type structure generates a voltage by absorption of a part of guided light, and the guided light that has not been coupled is output as an outgoing light from the semiconductor photovoltaic device. Consequently, the semiconductor photovoltaic device having a stack-type structure is different from and operates on a different principle than the nonlinear optical medium 9 of TAKEUCHI. Thus, it would not have been obvious to modify TAKEUCHI to meet the present claims.

An advantage of the present invention resides in that: "With the above configuration, splitting of an input light and generation of an electrical signal in the semiconductor photovoltaic can be realized by a single device, reducing components of the light control apparatus". (See, for example, page 15, lines 19 to 23 of the present application). TAKEUCHI does not recognize such an advantage and thus, it would not have been obvious to modify TAKEUCHI in the manner suggested.

Claim 19 was rejected under 35 USC 103(a) as being unpatentable over TORU in view of NEWMAN 5,086,329. That rejection is respectfully traversed.

NEWMAN is only cited with respect to the features of dependent claim 19 and does not overcome the shortcomings of TORU set forth above with respect to claim 17. Since claim 19 depends

from claim 17 and further defines the invention, claim 19 is believed patentable at least for depending from an allowable independent claim.

Claim 27 was rejected under 35 USC 103(a) as being unpatentable over TAKEUCHI in view of NEWMAN. That rejection is respectfully traversed.

NEWMAN is only cited with respect to the features of dependent claim 27 and does not overcome the shortcomings of TAKEUCHI set forth above with respect to claim 25. Since claim 27 depends from claim 25 and further defines the invention, claim 27 is believed patentable at least for depending from an allowable independent claim.

Claim 21 was rejected under 35 USC 103(a) as being unpatentable over TORU in view of PEARSON 7,148,469. That rejection is respectfully traversed.

PEARSON does not overcome the shortcomings of TORU set forth above with respect to claim 17. Since claim 21 depends from claim 17 and further defines the invention, claim 21 is believed patentable at least for depending from an allowable independent claim.

Claim 29 was rejected under 35 USC 103(a) as being unpatentable over TAKEUCHI in view of PEARSON. That rejection is respectfully traversed.

PEARSON does not overcome the shortcomings of TAKEUCHI set forth above with respect to claim 25. Since claim 29 depends from claim 25 and further defines the invention, claim 29 is

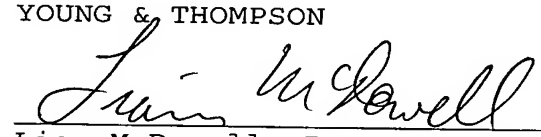
believed patentable at least for depending from an allowable independent claim.

In view of the present amendment and the foregoing Remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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